CROWN INPUT FOR A WEARABLE ELECTRONIC DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. patent application Ser. No. 14/913,345, filed Feb. 19, 2016, entitled "CROWN INPUT FOR A WEARABLE ELECTRONIC DEVICE," which is a national stage application of International Patent Application Serial Number PCT/US2014/053951, filed Sep. 3, 2014, entitled "CROWN INPUT FOR A WEARABLE ELECTRONIC DEVICE", which claims priority to: U.S. Provisional Patent Application Ser. No. 61/873,356, filed Sep. 3, 2013, entitled "CROWN INPUT FOR A WEARABLE ELECTRONIC DEVICE"; U.S. Provisional Patent Application Ser. No. 61/873,359, filed Sep. 3, 2013, entitled "USER INTERFACE OBJECT MANIPULATIONS IN A USER INTERFACE"; U.S. Provisional Patent Application Ser. No. 61/959,851, filed Sep. 3, 2013, entitled "USER INTERFACE FOR MANIPULATING USER INTERFACE OBJECTS"; U.S. Provisional Patent Application Ser. No. 61/873,360, filed Sep. 3, 2013, entitled "USER INTERFACE FOR MANIPULATING USER INTERFACE OBJECTS WITH MAGNETIC PROPERTIES. International Patent Application Serial Number PCT/US2014/053951, filed Sep. 3, 2014, entitled "CROWN INPUT FOR WEARABLE A ELECTRONIC DEVICE," is also a continuation-in-part of U.S. Non-provisional patent application Ser. No. 14/476,657, filed Sep. 3, 2014, entitled "USER INTERFACE FOR MANIPULATING USER INTERFACE OBJECTS WITH MAGNETIC PROPERTIES". The content of these applications is hereby incorporated by reference in its entirety for all purposes.

[0002] This application is related to International Patent Application Serial Number PCT/US2014/053961, filed Sep. 3, 2014, entitled "USER INTERFACE FOR MANIPULATING USER INTERFACE OBJECTS WITH MAGNETIC PROPERTIES"; International Patent Application Serial Number PCT/US2014/053957, filed Sep. 3, 2014, entitled "USER INTERFACE FOR MANIPULATING USER INTERFACE OBJECTS"; and International Patent Application Serial Number PCT/US2014/053958 filed Sep. 3, 2014, entitled "USER INTERFACE OBJECT MANIPULATIONS IN A USER INTERFACE".

FIELD

[0003] The following disclosure relates generally to wearable electronic devices and, more specifically, to interfaces for wearable electronic devices.

BACKGROUND

[0004] Advanced personal electronic devices can have small form factors. These personal electronic devices can include, but are not limited to, tablets and smart phones. Use of such personal electronic devices involves manipulation of user interface objects on display screens that also have small form factors to complement the design of the personal electronic devices.

[0005] Exemplary manipulations that users can perform on personal electronic devices can include navigating a hierarchy, selecting a user interface object, adjusting the position, size, and zoom of user interface objects, or otherwise manipulating the user interfaces. Exemplary user interface objects can include digital images, video, text, icons, maps, control elements, such as buttons, and other graphics. A user can perform such manipulations in image management software, video editing software, word processing software, software execution platforms, such as an operating system's desktop, website browsing software, and other environments.

[0006] Existing methods for manipulating user interface objects on reduced-size touch-sensitive displays can be inefficient. Further, existing methods generally provide less precision than is preferable.

SUMMARY

[0007] The present disclosure relates to manipulating a user interface on a wearable electronic device using a mechanical crown. In some examples, the user interface can be scrolled or scaled in response to a rotation of the crown. The direction of the scrolling or scaling and the amount of scrolling or scaling can depend on the direction and amount of rotation of the crown, respectively. In some examples, the amount of scrolling or scaling can be proportional to the change in rotation angle of the crown. In other examples, a velocity of scrolling or a velocity of scaling can depend on a velocity of angular rotation of the crown. In these examples, a greater velocity of rotation can cause a greater velocity of scrolling or scaling to be performed on the displayed view.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 illustrates an exemplary wearable electronic device according to various examples.

[0009] FIG. 2 illustrates a block diagram of an exemplary wearable electronic device according to various examples.

[0010] FIG. 3 illustrates an exemplary process for scrolling through applications using a crown according to various examples.

[0011] FIGS. 4-8 illustrate screens showing the scrolling of applications using the process of FIG. 3.

[0012] FIG. 9 illustrates an exemplary process for scrolling a view of a display using a crown according to various examples.

[0013] FIGS. 10-14 illustrate screens showing the scrolling of a view of a display using the process of FIG. 9.

[0014] FIG. 15 illustrates an exemplary process for scaling a view of a display using a crown according to various examples.

[0015] FIGS. 16-20 illustrate screens showing the scaling of a view of a display using the process of FIG. 15.

[0016] FIG. 21 illustrates an exemplary process for scrolling a view of a display based on a angular velocity of rotation of a crown according to various examples.

[0017] FIGS. 22-40 illustrate screens showing the scrolling of a view of a display using the process of FIG. 21.

[0018] FIG. 41 illustrates an exemplary process for scaling a view of a display based on a angular velocity of rotation of a crown according to various examples.

[0019] FIGS. 42-44 illustrate screens showing the scaling of a view of a display using the process of FIG. 41.

[0020] FIG. 45 illustrates an exemplary computing system for modifying a user interface in response to a rotation of a crown according to various examples.

DETAILED DESCRIPTION

[0021] In the following description of the disclosure and examples, reference is made to the accompanying drawings